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NATIONAL COMMUNICATIONS FROM PARTIES NOT INCLUDED IN ANNEX I TO THE CONVENTION

CONSIDERATION OF THE FOURTH COMPILATION AND SYNTHESIS OF INITIAL NATIONAL COMMUNICATIONS

Executive summary of information contained in initial national communications from Parties not included in Annex I to the Convention

Note by the secretariat*

Summary

This executive summary presents the main issues arising from the four reports of the compilation and synthesis of 83 initial national communications from Parties not included in Annex I to the Convention (non-Annex I Parties). The information is organized according to the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties. Many new initial communications have been submitted to the secretariat since the last report, but the issues of relevance for non-Annex I Parties have remained the same for all reporting Parties. Climate change education, training and public awareness, and the needs for financial resources and technical support, have been recognized as having considerable importance in the preparation of national communications and the implementation of the Convention over the long term.

At the seventeenth session of the Subsidiary Body for Implementation (SBI), Parties may wish to take note of this executive summary with a view to recommending a draft decision for further compilation and synthesis of initial national communications from non-Annex I Parties, for adoption by the Conference of the Parties at its eighth session.

* This document is submitted after the due date because of a delay caused by technical problems in communications with an external editor.

I. INTRODUCTION

1. The fourth compilation and synthesis of initial communications from Parties not included in Annex I to the Convention (non-Annex I Parties) is based on 31 communications received by the UNFCCC secretariat between 2 June 2001 and 1 June 2002. The executive summary, as presented here, is based on the third compilation and synthesis of 52 national communications and the fourth compilation and synthesis of 31 national communications submitted to the secretariat as at 1 June 2002.[1] These 83 communications are from: Algeria, Antigua and Barbuda, Argentina, Armenia, Azerbaijan, Bahamas, Barbados, Bhutan, Bolivia, Botswana, Burkina Faso, Burundi, Cape Verde, Chad, Chile, Colombia, Congo, Cook Islands, Costa Rica, Côte d'Ivoire, Cuba, Democratic Republic of the Congo, Dominica, Ecuador, Egypt, El Salvador, Ethiopia, the Federated States of Micronesia, Georgia, Ghana, Grenada, Guatemala, Guyana, Haiti, Honduras, Indonesia, Israel, Jamaica, Jordan, Kazakhstan, Kiribati, Lao People's Democratic Republic, Lebanon, Lesotho, Malaysia, Maldives, Mali, Marshall Islands, Mauritius, Mexico, Mongolia, Morocco, Nauru, Nicaragua, Niger, Niue, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Republic of Korea, Republic of Moldova, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Senegal, Seychelles, Singapore, Sri Lanka, Swaziland, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkmenistan, Tuvalu, Uruguay, Uzbekistan, Vanuatu, Yemen and Zimbabwe.

II. NATIONAL CIRCUMSTANCES

2. Parties provided information, with various levels of detail, on their national circumstances within the national communications, either as a separate chapter or as part of other chapters. Parties also provided information on the size and location of their territories, climate and other physical and geographical characteristics, development status and socio-economic conditions. The population of reporting Parties ranged from less than 3,000 to more than 209 million. In terms of development status, 14 reporting Parties are rated as having low human development and 44 as having medium human development, and nine are in the high human development group, according to the human development report of 2001 by the United Nations Development Programme. Sixteen Parties were not classified in the human development context. Twenty-one reporting Parties are also classified in the current United Nations Conference on Trade and Development list as least developed countries.

3. Parties described the importance of different economic sectors with respect to their development priorities and many Parties stressed the particular importance they attach to agriculture and water resources. Some Parties stressed the important contribution of the service sector in their economies. Many Parties, including small island developing States, stressed the primary importance of economic activities associated with coastal zones and fisheries. Most Parties provided detailed information on the energy sector, which indicated very wide disparities in Parties' circumstances and in the trends relating to current and future energy supply and demand.

III. SUSTAINABLE DEVELOPMENT AND THE INTEGRATION OF CLIMATE CHANGE CONCERNS INTO MEDIUM- AND LONG-TERM PLANNING

4. Parties provided information on sustainable development plans and the integration of climate change concerns into medium- and long-term planning. In general, information provided on this topic was limited and was not detailed enough to identify concrete activities relating to their plans. Only a few Parties dedicated a separate section of their communication to sustainable development concerns, and some other reporting Parties included a separate section on their national plans.

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[1] See decision 30/CP.7, paragraph 2 (b) (FCCC/CP/2001/13/Add.4).

5. Many Parties provided information on sustainable development and planning activities when describing national development and environmental plans, institutional arrangements and legislation on the environment and/or development. Several Parties emphasized the need to ensure that an integrated approach is followed in dealing with environmental issues. Many Parties described activities that national development and environmental plans should incorporate in order to achieve sustainable development. Only a few Parties reported on activities relating to the implementation of Agenda 21 of the United Nations Conference on Environment and Development. Many Parties also underlined the importance of effective participation of stakeholders, including non-governmental organizations, the private sector, and academic and community-based organizations, in the development of climate change policies.

6. Most reporting Parties indicated that they intend to include climate change planning in future social, economic and environmental considerations. Several Parties indicated that they either had already developed or were in the process of formulating comprehensive national climate change action plans and/or policy frameworks to meet their obligations under the Convention. Most of the Parties stressed the need for improved capacity to develop institutional frameworks dedicated specifically to climate change activities.

7. Many Parties provided information on their efforts to coordinate climate change activities and others highlighted the importance of the UNFCCC focal points in the coordination of these activities. The need to strengthen coordination at the local, national and/or regional levels was emphasized by several Parties. Many Parties expressed the need to maintain the activities already initiated during the preparation of the initial national communication. Many Parties provided information on existing and planned environmental legislation and strategies.

IV. INVENTORIES OF ANTHROPOGENIC EMISSIONS AND REMOVALS OF GREENHOUSE GASES

8. Parties provided national inventories of anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs). The level of information provided varied among Parties and very often small island developing States did not include emissions in some source categories because they did not have the necessary data. However, the reporting by other Parties was generally comparable to that of Annex I Parties.

9. Most Parties followed the advice of the Subsidiary Body on Scientific and Technological Advice (FCCC/SBSTA/1996/20, para. 30) and used the Revised 1996 Intergovernmental Panel on Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories. Most of them adopted the reference approach, except for a very few Parties which used the possibility offered by the IPCC Guidelines to develop methodologies and/or emission factors for some selected subcategories of sectors, such as agriculture, land-use change and forestry (LUCF) and waste, to better suit their national circumstances. The majority of Parties reported on difficulties relating to activity data, but some of them faced problems with emission factors and others reported difficulties in applying the IPCC Guidelines. About half of the reporting Parties indicated that they estimated carbon dioxide (CO_2) emissions from fuel combustion using both the IPCC reference approach and the sectoral approach. In most cases reported differences between the two approaches were of the same order of magnitude for both Annex I and non-Annex I Parties.

10. All Parties compiled data on emissions for CO_2, methane (CH_4) and nitrous oxide (N_2O), with the exception of Maldives, which did not include N_2O emissions. Many Parties (57) also provided estimates of aggregate GHG emissions in terms of CO_2 equivalent. CO_2 generally appeared to be the most important GHG emitted. Most Parties provided data on their largest GHG emission source and sink

categories, such as CO_2 emissions from fuel combustion and industrial processes, CO_2 removals from LUCF, CH_4 emissions from agriculture and waste, and N_2O emissions from agricultural soils and fuel combustion. Most reporting Parties provided emissions data for all or some ozone precursors (carbon monoxide (CO), nitrogen oxides (NO_x) and non-methane volatile organic compounds (NMVOC)). Few Parties provided emissions data on hydrofluorocarbons (HFCs), perflurocarbons (PFCs) or sulphur hexafluoride (SF_6), but more than half of the reporting Parties provided data on sulphur dioxide (SO_2) emissions. Nearly two thirds of the reporting Parties provided information on emissions from bunker fuels. Some Parties also provided information on the level of uncertainty of their estimates of GHGs.

11. For a majority of Parties, the energy sector was the largest source of GHG emissions, followed by the agricultural sector, but for more than one third of the Parties, the latter was the largest emitter. In two thirds of the cases, the emissions from these source categories were more than offset by removals by sinks within the LUCF sector as a whole.

12. The source of activity data for estimating emissions was referenced by most Parties even though this type of information was not requested by the UNFCCC guidelines. Sources of data varied widely among the Parties and frequently included national statistics. The two primary factors reported to have affected the quality of national GHG inventories were lack of activity data and unsuitability of default emission factors. Unavailability, inaccessibility and poor quality of activity data were frequently reported, particularly in the energy, agriculture and LUCF sectors.

13. Most Parties used the IPCC summary table, or a similar format, to report the inventory results. One third of the reporting Parties provided all or some of the relevant worksheets of the IPCC Greenhouse Gas Inventory Workbook, which facilitated ease of replication and transparency of data.

14. Most Parties described existing institutional arrangements for the preparation of national inventories and identified possible areas for their improvement. In a few cases, where national GHG inventories were prepared and reported for other year(s) in addition to the originally submitted inventory for the base year, the completeness, transparency and quality of the data were improved. This would suggest that there is some scope for encouraging the preparation of inventories on a continuous basis. Many Parties expressed the need to improve and update their inventories, and would require additional financial and technical assistance. Almost all Parties received external support in preparing their GHG inventories.

V. MEASURES CONTRIBUTING TO ADDRESSING CLIMATE CHANGE

15. Almost all Parties included in their national communication information on programmes containing measures that could contribute to addressing climate change by limiting the increase of GHG emissions and/or enhancing removals by sinks. The majority of Parties identified the relevant sectors in terms of their importance in present and/or future GHG emissions and analysed measures or projects that could contribute to GHG emissions abatement. Some Parties described sectoral policies and measures that would affect future emissions. The sectors covered in the reports included energy, agriculture, land-use change and forestry, and waste.

16. In the energy sector, Parties reported measures in terms of supply and demand sides. Measures on the supply side included energy conservation and efficiency, cogeneration, modernization of thermoelectric utilities, fuel switching, electricity imports, reduction of losses in transmission and distribution, promotion of rural electrification and the use of renewable energy sources. On the demand side, Parties outlined measures in the industrial, residential, commercial and/or transport sectors. These measures concerned mainly the enhancement of energy efficiency in lighting, cooling, cooking and air conditioning; the implementation of demand-side management programmes; the promotion of fuel

switching and use of renewable energy; the development of road transport master plans; the introduction of electric or compressed natural gas vehicles; discouragement of the use of private vehicles; improvement of the public transport system; legal measures to control vehicle emissions; and limitations on the importation of used and/or reconditioned vehicles.

17. In the agriculture sector, measures outlined related to improvement of farm management practices; reduction of areas under cultivation; rotation, diversification and intensification of crops; plant nutrient management; and substitution of mineral fertilizers. Other measures included adoption of improved irrigation systems, improvement in practices of cattle management, alteration of livestock diet, and improvement of the collection, utilization and storage of organic waste.

18. In the land-use change and forestry sector, measures proposed were, inter alia, preservation of existing forest, afforestation and reforestation programmes; prevention and control of fires and diseases; introduction of tax incentives; development of forestry livestock and agroforestry systems; review of forest and land management policies; and sustainable management of protected areas and fragile ecosystems.

19. In the waste sector, measures related mainly to integrated waste management, waste minimization at the different stages of the production cycle, recovery of methane from landfills and legal instruments.

20. Parties used expert judgement and/or models to assess GHG abatement options. Parties using expert judgement based their assessments on GHG inventories, economic growth patterns and national or sectoral development plans. Parties that used models projected the level of future emissions using business-as-usual and one or two mitigation scenarios. The main variables used to develop scenarios were population growth, urban population, energy demand, gross domestic product, and oil consumption. Emission projections were mainly estimated for the years 2005, 2010, 2020 and 2030.

21. Several Parties reported on the criteria used to assess and select potential abatement options. Criteria used included the possibilities for their integration into national and sectoral development plans and programmes; possible impacts on the economy, enhancing economic growth and development; availability of financial resources and technical assistance; potential environmental impacts; potential emission reductions; and feasibility and cost-effectiveness of implementation.

22. The status of implementation of the abatement options differed among Parties. Many Parties indicated that studies were at an early stage. The development of more detailed recommendations would require consultation with and input from stakeholders in the public and private sectors, as well as the development of appropriate policy and legal measures. Some Parties mentioned specific measures already implemented, relating mainly to policy instruments and forestry laws.

23. Many Parties included in their national communications a number of projects aimed at reducing GHG emissions and enhancing removals by sinks. Information provided on these projects sometimes included associated implementation cost as well as the mitigation potential in accordance with Article 12, paragraph 4, of the Convention. Some Parties provided project concepts, which included expected outcomes, including environmental and social benefits.

VI. RESEARCH AND SYSTEMATIC OBSERVATION

24. Most Parties provided information on research and systematic observation either in a dedicated chapter or in a section of their national communication. Some Parties provided information on this issue sporadically in a number of sections of the national communication.

25. Most of the research identified or planned by Parties is on climate change vulnerability and adaptation assessments. The main sectors considered were agriculture, water resources, coastal zones, forestry and energy. Other research focused on improving understanding of the El Niño Southern Oscillation (ENSO) phenomenon, reducing and managing uncertainty relating to climate change and development of appropriate climate change scenarios, and their socio-economic implications. About half of the Parties reported on existing or future institutional arrangements at the national, regional and international levels to facilitate research on climate change.

26. Ongoing or planned research programmes were aimed at further understanding the impacts of climate change, extreme events and climate variability on biodiversity, land use, forests, agriculture, water resources, coastal zones, fisheries, ecosystems, human health and human settlements. Some of the adaptation research programmes included evaluation of a range of coastal adaptation options, plant and animal breeding programmes, integrated pest management, improved soil and crop management, evaluation and costing of adaptation measures in water supply and use, and development of new adaptation technologies and new resistant plant/crop species.

27. When reporting on systematic observation, most Parties included information on their observation records and the types and number of observation networks and stations that are in use. In most cases these systems consist of a network of observation and monitoring stations which collect meteorological, oceanographic and hydrological data. Some Parties mentioned their participation in various global observing systems, such as the global ocean observing system (GOOS) and the global climate observing system (GCOS), and others acknowledged their cooperation and collaboration with international organizations.

28. Most Parties reported on the status of systematic observation and planned activities. The most common ongoing observations focused on climate, hydrology and sea level. Some Parties also described cooperation at the regional and international levels, constraints, and the needs for financial and technical assistance.

29. Research programmes on mitigation were mainly related to analysing options for energy recovery, developing and promoting renewable energy sources, evaluating the applicability of proposed mitigation measures, and the evaluation and costing of mitigation measures. Many Parties also stressed the development of activity data and/or appropriate emission factors for improving the quality of national GHG inventories.

30. The constraints relating to research and systematic observation were broadly identified by many reporting Parties as lack of financial resources and technical support, and lack of human capacities and capabilities. Many Parties provided information on planned research programmes that will be undertaken depending on the availability of financial and technical resources. Needs and priorities for systematic observation included training and capacity-building in the sciences of meteorology and climatology, database development and management, and the upgrading, rehabilitation and strengthening of existing observation systems, stations and networks. Many Parties also indicated that large gaps exist in observations and therefore require new monitoring stations, improvement of technical capacities and capabilities, upgrading and maintenance of equipment, and coordination and strengthening of the institutions responsible for education, training and research.

VII. CLIMATE CHANGE IMPACTS, ADAPTATION AND RESPONSE STRATEGIES

31. Almost all Parties provided information on their current and future vulnerabilities as well as on adaptation measures and response strategies, including the level of implementation. This included information relating to the use of methods and approaches, limitations of methods and tools, problems

and difficulties encountered, sectors studied, methods for analysing and evaluating adaptation needs and priorities, and institutional arrangements and networking. Some Parties also provided information on other technical areas of work relating to vulnerability and adaptation that they would envisage undertaking if they had sufficient financial resources and technical support.

32. Most Parties reported having used the IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations, including the IPCC emission scenarios (IS92 series). Some Parties specifically reported on the use of the United Nations Environment Programme Handbook, expert judgement or their own methods and approaches. Most Parties treated the different sectors in isolation, whereas others performed integrated assessments to account for interactions between two or more related sectors.

33. Most Parties used various global circulation models (GCMs) to generate climate change scenarios, and about half of the Parties used the integrated model system for the assessment of greenhouse gas-induced climate change and the scenario generator (MAGICC-SCENGEN) for generating regional climate change scenarios based on a single or various GCMs. Many Parties also used incremental or analogue scenarios for various time horizons up to the year 2100.

34. The most common methodology adopted for sea-level rise scenarios for different time horizons up to the year 2100 was that of the IPCC. Some Parties also carried out sensitivity analyses by adopting high- and low-emission scenarios in calculating projected sea-level change.

35. Some Parties reported on problems or difficulties encountered in applying the IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations, and on the limitations of the methods and tools used. These were often related to the low resolution of GCMs, the lack of comprehensive data sets required for proper validation of model results, and lack of time, human and financial resources.

Vulnerability

36. A wide range of models as well as expert judgement were used in the analysis of impacts in various sectors. The models were of the process-based or integrated type for sectors such as agriculture (including livestock), water resources, forests, grasslands, coastal zones and human health. Other sectors and areas covered included human settlements, infrastructure, fisheries, biodiversity, tourism and energy, as well as ecosystems such as woodland and coral reefs. Most of the emphasis was placed on specific sectors depending on their socio-economic importance.

37. The majority of Parties assessed the vulnerability of the agriculture sector and indicated that it will be adversely affected by climate change, extreme events such as droughts and hurricanes, a loss of the soil fertility, erosion, leaching of mineral fertilizers, increased incidence of pests and diseases, heat stress on animals and the indirect effects of sea-level rise. The vulnerability assessments also focused on agricultural crops under a range of climate change scenarios. Lower crop and animal productivity were generally expected, except for middle- and high-latitude countries, where it was expected that an increase in crop production will result from the longer growing season, more favourable temperatures and increased CO_2 fertilization. Other effects identified included a lower quality of fodder.

38. Many Parties assessed the vulnerability of coastal zones, some Parties conducting the assessment under different sea-level rise scenarios. The main impacts identified were erosion and setback of coastal areas, an increase of salinity in the estuaries and wetlands with death of mangroves, salt water intrusion into aquifers, beach degradation and losses, a decrease in the productivity of coastal fisheries, enhanced coral bleaching and devastating effects on species of corals. Almost all coastal countries, including the small island developing States, reported that climate change and consequent sea-level rise will have a devastating effect on coastal communities and infrastructure. Some Parties estimated that a sea-level rise

of 0.5 to 1.0 m would result in the inundation of coastlines and the destruction of infrastructure such as coastal roads and houses. Most Parties also expressed their concern about the negative impacts of sea-level rise on low-lying agricultural lands and ecosystems, wetlands and estuaries.

39. Most Parties reported on expected impacts of climate change on water resources. Many Parties reported a potential increase in run-off due to more intense rainfall and higher risk of flash flooding, whereas others stressed the decrease in water resources. The latter could result from lower rainfall, increased evaporation, reduction in aquifer recharge and pollution. Reduced water resources will have a negative impact on hydroelectric power generation, food production, especially production of crops under irrigation, and transport. The negative impacts of salt water intrusion on water quality were indicated by many reporting Parties with many Parties also stating that they already face problems of water shortage.

40. Many Parties also provided information, with various levels of detail, on the assessment of climate change impacts on human health. The general view was that the limited observations and studies available make it difficult to understand clearly the relationships between climate characteristics and human health. Most of the Parties reported that the incidence of water- and vector-borne diseases, and those relating to water contamination, is likely to increase. A wide range of diseases have been identified, the most common being malaria, dengue fever and diarrhoea. Many Parties mentioned the additional stress that high temperatures will have on the population, making them more prone to sicknesses. Some Parties indicated a likely increase in the incidence of endemic diseases due to higher population densities and poorer sanitary conditions.

41. Most Parties provided information on the assessment of climate change impacts on terrestrial ecosystems. Most of the Parties indicated a decrease in land cover vegetation as a result of an increase in aridity and the lower productivity of forests and rangelands. Some Parties indicated the change and displacement of ecosystems as well as a general shift in the composition of species. Other Parties stressed that deforestation is likely to lead to a loss of biodiversity. Some Parties reported on the risk of increased frequency of forest fires in the dry seasons and the consequent increase in soil erosion.

42. Many Parties reported on the expected adverse effects on fisheries resulting from higher temperatures and changes in salinity. Impacts are expected to stem from the destruction of nursery areas and breeding grounds, such as mangroves and coral reefs, and reduced availability of nutrients. In most cases the anticipated impacts remain uncertain as it is still difficult to forecast the rate of change and the ability of species to adapt.

43. Many Parties provided information on the vulnerability of other sectors/resources such as human settlements, tourism and biodiversity. Some Parties indicated the potential negative effects resulting from frequent storms and hurricanes, particularly on infrastructure, energy systems and tourism.

Adaptation

44. Almost all reporting Parties provided information on adaptation options, measures and/or strategies relating to climate change impacts for a wide range of sectors. Information varied widely from one Party to another. Usually no clear indication was given of the methods used in assessing and analysing the adaptation strategies and measures. Some Parties, however, indicated the use of expert judgement based on GCM results or predictions by impact models. Other Parties stressed the need for more detailed in-depth vulnerability studies in order to formulate adaptation measures and identify needs for increased financial and technical support.

45. Many Parties reported on adaptation options and/or strategies in agriculture, including the development of drought-tolerant crops, the improvement of early warning systems, management and crop husbandry practices (alternative cropping schedules, plant densities or crop species), the introduction of irrigation, changing to more efficient systems, enhancement of erosion control, and training and provision of assistance to farmers. Some Parties reported on ongoing breeding programmes that are in line with the adaptation process.

46. Many Parties reported on adaptation options for water resources and indicated various water policy reforms to be introduced, such as those focusing on water conservation, inter-basin water transfer, desalination, flood management, and construction of dams and reservoirs for increased water storage. Some Parties also envisaged recycling of waste water and reducing demand, for instance, by introducing more efficient irrigation systems.

47. About half of the reporting Parties provided information on adaptation measures which could be implemented in the coastal zones through integrated coastal zone management. Other Parties reported on adaptation strategies and measures in the areas of human health, forests, tourism, fisheries, human settlements, biodiversity and wildlife. Measures reported included improving the health care system, enhancing forest management, protecting tourism infrastructure, strengthening legislation and promoting conservation of biodiversity.

48. The needs and priorities for strengthening the institutional arrangements for vulnerability and adaptation work were not clearly spelled out in the information provided by the reporting Parties. However, some Parties mentioned the need for better arrangements to be put in place for data collection and analysis, and others indicated needs for further capacity-building and human resource development.

49. Other Parties identified better coordination and cooperation between relevant institutions and agencies as key factors in facilitating the integration of climate change concerns into policy-making processes, and others suggested possible review and, where necessary, amendment of existing legislation to develop the appropriate institutional framework for dealing with impacts of the climate change. A few Parties indicated the need to improve the abilities of national climate change coordinators and national institutions to manage and coordinate climate change programmes.

50. A few Parties reported on the level of engagement of relevant stakeholders and policy makers in the vulnerability and adaptation assessment process, and on the participation of and collaboration between national experts and institutions in undertaking the vulnerability and adaptation assessment work.

51. Many Parties provided information on their needs and priorities for education, training and research in vulnerability and adaptation assessments, with most of them stressing the importance of training and research. Training aimed primarily at strengthening human and institutional capacities to undertake in-depth work on vulnerability and adaptation assessment in various sectors was deemed essential.

52. Some Parties envisaged tackling technical areas relating to vulnerability and adaptation assessment work, particularly in making better predictions of changes in temperature and precipitation and in reducing the level of uncertainty when undertaking assessments. A few Parties reported on the importance of promoting regional and international cooperation, networking and sharing of information, the pooling of resources, and the transfer of appropriate technologies for vulnerability and adaptation assessment.

VIII. EDUCATION, TRAINING AND PUBLIC AWARENESS

53. Almost all the reporting Parties provided information on ongoing and/or future programmes on education, training and public awareness, with various levels of detail. A separate chapter was dedicated to these three issues by half of the reporting Parties, and the others either incorporated them as a section of a chapter or covered the issues very broadly within the national communications. In almost all cases, the presentation of the information was such that it was difficult to distinguish clearly between ongoing activities and programmes and those that were to be implemented in the future. Parties generally expressed the need to improve national programmes on education, training and public awareness relating to climate change for practically all sections of the population, including policy makers and the public at large.

54. Most Parties provided information on existing and/or future initiatives to incorporate environmental and climate change issues at all levels of the formal education system. Some Parties have already integrated teaching of climate change issues, mainly within the tertiary education curriculum, and others expressed their intention to do this in the future. One Party indicated its commitment to grant scholarships for studying the science of climate change.

55. Most Parties stressed the importance of training within the context of the preparation of national communications. Several Parties mentioned the lack of enough trained experts in the field of climate change to meet their obligations under the Convention. Some Parties stressed the importance of integrating climate change issues into formal and/or non-formal education programmes and to raise public awareness. Other Parties stressed the inability of existing institutions to undertake research and training to meet the reporting requirements of the UNFCCC or to develop and implement appropriate public awareness programmes and activities.

56. Many Parties recognized the importance of public awareness programmes and the need to build on and improve existing activities. However, the information provided was often not clear enough to make it possible to assess the focus and scope of such programmes. Information for public awareness was reportedly disseminated using a wide range of materials and means. In addition to the general public being targeted in most cases, some Parties also reported on special awareness programmes for specific groups of the population.

57. Many Parties indicated a need for assistance to enhance research and systematic observation in order to cope better with climate change. Areas emphasized were capacity-building, monitoring and data collection, proper instrumentation and institutional strengthening.

IX. FINANCIAL AND TECHNOLOGICAL NEEDS AND CONSTRAINTS

58. All reporting Parties provided some information on their financial and technological needs and constraints they faced in the preparation of their national communications and the implementation of the Convention. Several Parties provided the information in a separate chapter and/or section, but most Parties raised these issues in chapters of their communication that were dedicated to other areas. Most Parties reported on constraints relating to data availability and quality, available technologies, tools and methodologies, and human, financial and institutional capacities.

59. Most Parties acknowledged having received financial and technical assistance from the Global Environment Facility and its implementing agencies and other bilateral or multilateral programmes for the preparation of the initial national communication. Most Parties stressed the importance of the continuation of such assistance. In accordance with Article 12, paragraph 4, of the Convention and paragraph 17 of the UNFCCC guidelines, many Parties included information on projects to abate GHG emissions proposed for funding, and some Parties included a list of adaptation projects for funding.

60. Almost all Parties reported difficulties they faced in preparing their national GHG inventories and indicated that these stemmed from a lack of technical and institutional capacity as well as good quality data. Many Parties reported that the emission factors were not appropriate or applicable to their situation, and some Parties stressed the need to adapt the methodologies to their own circumstances. They further expressed the need for assistance to ensure continuous collection and maintenance of activity data, to improve the accuracy and reliability of these data, to enhance local technical capacity and expertise, and to develop national emission factors, mainly in the energy, agriculture, LUCF and waste sectors.

61. Parties referred to gaps and difficulties relating either to the assessment or to the possible implementation of abatement options. Among the problems relating to the assessment of abatement options, Parties mentioned inadequate institutional arrangements, lack of information, lack of capacity for mitigation analysis and project development, and lack of financial resources. Constraints on the implementation of abatement measures included inadequate institutional arrangements, lack of financial resources, lack of tax incentives and/or policies to promote the introduction, production and use of more efficient appliances, aversion to the risk of adopting new technologies, higher cost of abatement technologies, and a lack of public and political support for the implementation of abatement measures.

62. With regard to problems and constraints encountered in the area of vulnerability assessments, many Parties indicated that the studies were not sufficiently extensive to cover all vulnerable sectors because of lack of capacity, technology/methodology, good-quality data and adequate financial resources. The needs identified related to upgrading skills and research, improving data collection and analysis pertaining to vulnerability and adaptation measures, and capacity-building to assess and respond to the impacts of climate change. Many Parties emphasized the need to improve on the projections of temperature and precipitation changes as well as on sea-level rise so as to reduce uncertainties about their impacts. The main sectors of concern were water resources, agriculture, coastal zones, human settlements, population, health and ecosystems. Few Parties stated their needs explicitly.